

# EDUCATIONAL RESEARCH AND THE GOOD FOR HUMANKIND: CHANGING EDUCATION TO SECURE A SUSTAINABLE WORLD<sup>1</sup>

Stephen Kemmis<sup>2</sup>

Rector Keijo Hämäläinen, Director Jussi Välimaa, distinguished guests, ladies and gentlemen,

I thank the Finnish Institute for Educational Research (FIER) for the great honour of its invitation to deliver this address on this auspicious occasion. I congratulate the Institute, its founders, its Directors, its staff, and all of those who have supported it, for its work over these last fifty years. Through the years, you have remained loyal to the national task of “investigating, assessing, and developing the Finnish educational system and school culture” (FIER, 2018).

Early in the *Nicomachean Ethics* (Bartlett and Collins, 2011, p.27; 1103b), Aristotle explains the purpose of the inquiry he is undertaking: “... we are conducting an examination, not so we may know what virtue is, but so that we may become good”. In this address, I want to encourage you to think the same thing about education in general: we educate people not so they may *know things*, but so they can *live well* – so they can live good lives.

As educators – when we come to develop a new course, or plan a lesson, or write a lecture, for example – we frequently focus our attention on the knowledge to be taught. British educational philosopher Richard Peters (1964, 1966), for example, defined education as an initiation into *forms of knowledge*<sup>3</sup>. By contrast, I want to encourage you to think that education is an initiation into *practices*. That doesn't mean we give up on the idea of teaching or learning knowledge; it is to say that we want to see knowledge in its context of use. For me, the critical point is that “all of what is conventionally called ‘knowledge’ arises from, recalls, anticipates, and returns to its use in practices” (Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer and Bristol (2014, p.58; see also Kemmis and Edwards-Groves, 2018, p.116).

Following notions of practice grounded in the writings of philosophers Ludwig Wittgenstein (1957), Alasdair MacIntyre (1983) and Charles Taylor (1971), Paul Smeyers and Nicholas Burbules (2006) argued that education is an initiation into practices. They argued against the view that understanding education as an initiation into practices is not inherently conservative, as if initiating people into practices necessarily only reproduced existing forms of social life. On the contrary, they argued that education as initiation into practices also admits progressive aspirations, as, for example, when people are initiated into new and emerging practices as they begin to take hold in social life, like initiation into practices of working on line.

Before going further, however, I want to note that being *initiated* into practices doesn't always require someone who is the ‘initiator’, and someone else who is the ‘initiatee’. People can initiate themselves into practices, for example, by mimicking others, or by what Lave and Wenger (1991) called “legitimate peripheral participation” – as a newcomer to the

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<sup>3</sup> For a review of some critical receptions of Peters's view, and a renewal of his central idea, see Waks (2013).

practice watches ‘old hands’ as they practice, and following along to ‘get the hang of it’. And many of us initiate ourselves into practices. Think, for example, of how we once learned to use our smartphones or how we learn to use new apps. We do it by a kind of trial and error that allows us to experience ‘what works’ when we press different icons and see what happens.

So: I want to play with the shift of perspective from education as an initiation into knowledge to education as initiation into practices. I hope to persuade you that when we make this shift of perspective, different things come into view. We see the world of education, and educational research, rather differently.

But first a word about practices.

## Practices

For the last fifteen years or so, I have been thinking with colleagues about practice, influenced, like Smeyers and Burbules, by Wittgenstein, MacIntyre and Taylor, but also by practice theorists like Richard J. Bernstein (1971), Pierre Bourdieu (1977, 1990), Anthony Giddens (1979, 1984), and Stephen Turner (1994), and then by a new generation of practice theorists like Andreas Reckwitz (2002), Bruno Latour (2005), Silvia Gherardi (2012; Gherardi and Strati, 2012), Davide Nicolini (2012), and Elizabeth Shove and her collaborators (for example, Shove, Pantzar and Watson, 2012). A recent volume, edited by Alison Hui, Theodore Schatzki and Elizabeth Shove (2017) demonstrates the theoretical diversity of contemporary approaches to practice theory, especially as it comes to deal with large-scale social phenomena. In particular, however, we have been influenced by the practice theory of the American philosopher Theodore Schatzki (for example, 1996, 2001, 2002, 2003, 2005, 2006, 2010, 2012).

When we note this particular selection of authors, we have traversed about seventy years of recent practice theorising. Of course, if we mention Aristotle’s (384-322BC) conception of *praxis*, we are plunged back nearly two and a half thousand years. People have been thinking about practice and praxis for a long time. Karl Marx famously grappled with the idea in his (1834/1938) *Theses on Feuerbach*, writing of praxis both as “sensuous human activity” and as “revolutionary praxis”.

Some people think that we live our lives in a stream of *consciousness*. I think that we live our lives in a ceaseless stream of *activities* – awake or asleep. Most of our waking activities occur as parts of *practices* – when we are accomplishing something through our practices. Examples of practices are farming, history, medicine, chess and education. Others are writing a conference paper, taking a coffee break, travelling to a conference, giving a conference paper, and responding to critical feedback. Practices vary in scale from very small, like asking a question, to very large, like the practices of automobility that gradually took hold in the late nineteenth and early twentieth centuries, and that are now such an important part of contemporary transportation (Shove, Pantzar and Watson, 2012, pp.26-41). Perhaps that practice is now on the edge of other major transformations: the shift to driverless cars, and the end of cars powered by fossil fuels.

Education is a practice. Within it, we frequently find practices like teaching and learning. And within those are slightly narrower practices like teaching and learning science, and teaching physics, and learning that  $e=mc^2$ . There are macro-practices and micro-practices, and practices at many scales in between.

Today, I will define a practice as *a form of human action in history, in which particular activities (doings) are comprehensible in terms of particular ideas and talk (sayings), and when the people involved are distributed in particular kinds of relationships*

*(relatings), and when this combination of sayings, doings and relatings 'hangs together' in the project of the practice (the ends and purposes that motivate the practice)<sup>4</sup>.*

Knowledge has a place in practices – particularly, in this definition, in the ideas and talk that make the practice comprehensible, but also in the knowledge which makes possible our practical doings (actions in the world) and our relatings (relationships with others).

Moving from the view that knowledge is central to education, to the idea that practices are central, involves a shift from an *epistemological perspective* to an *ontological perspective*. An epistemological perspective puts knowledge at the centre of things; an ontological perspective puts practice, and human action in history, at the centre of things. The first focuses on knowing; the second on being and becoming. Thus, an epistemological view of education puts the emphasis on what learners come to know; an ontological perspective on education puts the emphasis on what they come to be, and on their becoming. In the first, we are principally concerned with what is 'in learners' heads'; in the second, we are principally concerned with 'how they live their lives'.

### **We live in intersubjective space**

The German philosopher Jürgen Habermas has made an extensive critique of what he calls 'the philosophy of the subject' or 'the philosophy of consciousness' (for example, in Habermas, 1987b). He says that the philosophy of the subject assumes that truth is something to be found in propositions that describe or purport to explain things in the world. To use the image from the title of Richard Rorty's (1979) book, this notion of truth sees propositions as a kind of "mirror of nature". It is an ancient view of truth, in which propositions in the mind are like images from the world that fall onto our retinas, and are then transmitted by the optic nerve into our brain, where our mind 'makes sense' of what we see. Following Wittgenstein and the American pragmatists, Habermas comes to the conclusion that truth cannot reside in propositions themselves, nor do they exist in individual human minds. Following Wittgenstein, he accepts that meaning depends on people using language and participating in language games in which we come to share meanings by orienting to the world in ways that seem to us to be in common. Following the pragmatists – and one might also say from

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<sup>4</sup> This definition is a deliberate variation on the definition given in Kemmis *et al.* (2014, p.31): "*A practice is a form of socially established cooperative human activity in which characteristic arrangements of actions and activities (doings) are comprehensible in terms of arrangements of relevant ideas in characteristic discourses (sayings), and when the people and objects involved are distributed in characteristic arrangements of relationships (relatings), and when this complex of sayings, doings and relatings 'hangs together' in a distinctive project.*"

Schatzki (2010, p.51) provides a more complex and informative definition of practice:

By a 'social practice' I mean an open, organized array of doings and sayings. Examples include political practices, horse breeding practices, training practices, cooking practices, religious practices, trading practices and teaching practices. Practices of any of these sorts can vary historically and geographically, the variation consisting in different practices of a given sort consisting in different doings and sayings, organized differently, with a different history. The doings and sayings that constitute a practice are organized by phenomena of four types: (1) action understandings, which combine knowing how to perform an action that helps compose the practice, knowing how to recognize this action, and knowing how to respond to it; (2) rules, by which I mean formulated directives, admonishments, orders, and instructions to perform or leave off certain actions; (3) a teleoaffective structure, which comprises acceptable or prescribed ends, acceptable or enjoined projects to carry out those ends, acceptable or prescribed actions to perform as parts of those projects – thus acceptable or prescribed end-project-action combinations – as well as, possibly, acceptable or prescribed emotions and even moods; and (4) general understandings about matters germane to the practice. The ends, projects and actions that form a teleoaffective structure can be enjoined of and acceptable for either all participants in a practice or those participants enjoying certain statuses, for example, certain roles or identities.

practice theory – he accepts that when we encounter one another in language games, and in forms of life, we do so *in practice*. On the ‘post-metaphysical’ view of truth that Habermas contrasts with ‘the philosophy of the subject’, truth does not exist in propositions ‘read off’ by the mind; it exists in discourse, in dialogue, in conversations, in intellectual traditions, in schools of thought, in scientific disciplines. It exists where we test ideas through communicative action (Habermas, 1984, 1987a). Truth is not ‘subjective’, but ‘intersubjective’.

I have invited you to think of education not as an initiation into knowledge, but as an initiation into practices. I have invited you to think of the shift from an epistemological perspective, which emphasises knowing, to an ontological perspective, which emphasises being and becoming. The shift from the subjective to the intersubjective is a similar shift. It emphasises that truth is not just ‘in our heads’, but in an intersubjective world we share. It reminds us that we are not isolated, atomistic individuals, but beings whose knowing and being is rooted in shared language and action and interaction in a shared world (Taylor, 1991). From infancy, we are formed intersubjectively, through our encounters with others and the world. We encounter one another and the world as we accomplish things through our practices, in a ‘three dimensional’ social reality:

1. In semantic space, we encounter one another as interlocutors, in the shared medium of language. Thus we form our own individual understandings of the world, and sometimes arrive at novel insights, but, at the same time, all of our understandings are expressed in languages we share with others.
2. In physical space-time, we encounter one another as embodied beings, in the medium of work and activity. Thus we form our own individual ways of doing things in forms of work and other activities that frequently also involve others, and we do things in a material world that we also share with others.
3. In social space, we encounter one another as social beings in the medium of power and solidarity. Thus we form our own place in the world, in our own special set of relationships with all the others we encounter, each of whom also exists in webs of relationships of inclusion and exclusion, and hierarchy and equality.

In practices, we encounter others and the world in these three dimensions simultaneously. Like the three dimensional intersubjectivity in which we encounter others and develop as persons, our practices are also three dimensional: they are composed of combinations of *sayings*, *doings* and *relatings* that hang together in the *projects* of our practices.

### **Through our practices, we participate in the community of life on the planet**

It is through our co-participation in practices that our encounters with others and the world give us our individuality and uniqueness. At the same time, we are also socialised and shaped as co-participants in a shared world, a shared community, and, in the words of the title of this seminar, a shared “Fatherland”. Beyond this, I believe, this shared community extends, in the end, to the shared community of all life on the planet. Indeed, our entire being, as individual human beings, is a fleeting pulse in the shared and expanding materiality and history of the cosmos.

But here I want to emphasise that we participate in the community of life on the planet *through our practices*: we eat, we breathe, we move around, we transform things – and, as we do, we connect with other people, and with a range of other species, from the bacteria that make up our biome, to the species farmed for our food, to the distant inhabitants of the South American rainforest ecosystems now under threat by our demands for more farmland, timber, and minerals.

Our species, *Homo sapiens*, evolved through a dynamic process of reproduction with variation and selection, that also yielded the differentiation of all species that have ever existed, as well as all the individuals within those species. Our *practices* also differentiate and evolve through the same dynamic process of reproduction with variation and selection as we interact with others and the world. We make our start in the world with relatively undifferentiated practices like sucking and grasping, and, through long processes of differentiation, some under the influence of education, we rise to a vast array of practices in which, as adults, we practise a profession, or play leading roles in organisations and communities. Our very selves are woven in and by the practices in which we participate. Our lives are lived in a dialectic in which our selves generate our practices, and our practices generate our selves<sup>5</sup>, but not *by ourselves* – because this dialectic is always played out intersubjective spaces that we share with other people, other species and other things.

### **Practices adapt and evolve in relation to practice architectures**

Through life-long processes of specialisation, the practices of our infancy, childhood and youth differentiate and evolve to yield the rich repertoire of practices by which, as adults, we accomplish the many and varied things we do. Our practices reach out like tendrils into the semantic space, material space-time, and social space we inhabit, and, in the process, they are shaped and re-shaped by the arrangements with which they are entangled (Hodder, 2012):

1. In semantic space, the sayings of our practices are entangled with cultural-discursive arrangements (in language and specialist discourses) that enable and constrain what we say and how we think.
2. In physical space-time, the doings of our practices are entangled with material-economic arrangements (in the medium of activity and work) that enable and constrain where we can go and what we can do.
3. In social space, the relatings of our practices are entangled with social-political arrangements (in the medium of power and solidarity) that enable and constrain how we can relate to others and the world.

Taken together, these three different kinds of arrangements form *practice architectures* that enable and constrain what we think and say, what we do, and how we relate to others and the world through our practices. Thus, for example, my practice of writing this lecture has been shaped by the history of my thought, and the ideas and literatures that have shaped my thought through a lifetime; it is shaped by a history of writing various kinds of academic works and addresses and by the tools and technologies – including my chair and desk and computer – that have enabled my writing; and my practice has been shaped in relationships with hundreds of colleagues and interlocutors, and in anticipation of this relationship I am now having with you. Vast constellations of arrangements – practice architectures – have enabled and constrained the way my practice of writing unfolds each time I sit down to write.

But our practices are not determined by the practice architectures that prefigure (Schatzki, 2002) them. Practices are malleable; they have a remarkable plasticity. They flow into new conversations with new interlocutors, into new places and times, and into new relationships, adapting and evolving in response to the new circumstances and conditions they encounter. Sometimes our practices change readily, in fluid adaptations that readily allow us to continue functioning smoothly in new circumstances. But sometimes our

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<sup>5</sup> Bourdieu's (1990) notion of *habitus* captures this dialectic: it is 'the feel for the game' of the experienced player that both generates appropriate action in the field of play, and allows the player to read the flow and possibilities of the game as it unfolds.

practices are slow and resistant to change, and we do not easily give up our established ways of doing things. We see examples of both these tendencies watching learners learn new practices, sometimes adapting easily to new tasks, and sometimes hesitantly and with resistance. We also see both when we observe teachers' professional learning, sometimes readily adopting new forms of pedagogy, and sometimes resisting new practices in order to maintain practices that are long established. We need to understand more clearly how practices change and develop, the kinds of conditions under which they adapt and evolve, and the kinds of conditions under which they resist and maintain their existing forms.

A recent (2013) book, *Sustainable Practices: Social theory and climate change*, edited by Elizabeth Shove and Nicola Spurling, explores various dimensions of how practices like consumption or transportation have powerful and diffuse effects on the social-ecological arrangements that we human beings live amongst. It also shows how services like road networks, service stations, car manufacturers and sellers, washing machine manufacturers and distributors, and national power grids powerfully enable and constrain the practices of whole human populations. In my terms, these services function as vast practice architectures that powerfully channel practices like driving, laundering, and power consumption. Changing our practices requires more than changing what we say and do and how we relate to others and the world. It also requires changing the practice architectures that enable and constrain our practices – in this case, the nature and distribution of the services that channel our practices. That is why actions like installing heat pumps and photovoltaic panels contribute so much to improving our use of fossil fuels: they allow us gradually to replace practice architectures more dependent on fossil-fuels with others less dependent on them.

Figure 1 aims to encapsulate the view of practices I have outlined: the theory of practice architectures (see Kemmis *et al.*, 2014; Mahon, Francisco and Kemmis, 2017; and Kemmis and Edwards-Groves, 2018).

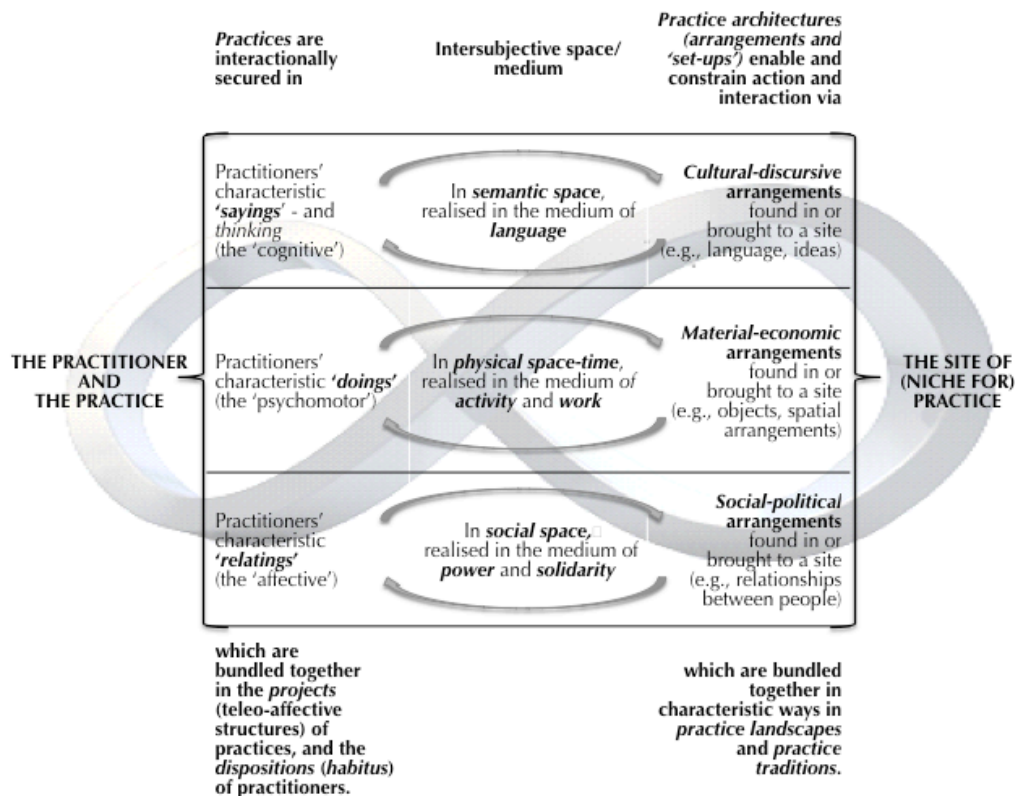


Figure 1: The theory of practice architectures (Kemmis *et al.*, 2014, p.38)

## Life in practices

I stand in awe and wonder at the extraordinary variety in the array of ecologically interconnected life forms that currently exist on our planet. Every species in this array has come into being by displacing innumerable earlier species now extinct. There is no way back to our earliest ancestors; contemporary biodiversity blooms in a humus made rich by the decay of departed species.

The extraordinary variety in the practices and accomplishments of human beings is likewise a cause for awe and wonder. All of these diverse practices and accomplishments also came into existence through being nurtured by conditions that made them possible, each in its own ecological niche, and in ecological interdependencies that connect them with one another in direct or indirect ways.

Contemporary societies across the planet have been composed through human action in history – through dazzling varieties of practices and accomplishments. And as they differentiate still further, an equally dazzling variety of practices is required for their maintenance, their transformation, and their sustainability. Many millions of highly differentiated and specialised practices, shared way beyond the village and the globe, require human beings to sustain them. And so we must discover *how* to disperse *which* practices through human communities and populations, not only for the survival of contemporary societies and economies, but also for the survival of our species and all the other species, and the planet, on which we depend. Discovering how to disperse these practices through human populations, and how to secure them in people and in organisations, is an important task for education, and therefore an important task for educational research.

Through education, we need to initiate rising generations into the vast mix of practices needed for the survival of our communities and our planet. And we need to initiate them *out of* many practices that currently threaten not only *Homo sapiens* but many other species that inhabit our planet.

With this image of schools and other educational institutions as the purveyors of practices into living human communities, and the community of life on the planet, we can sharpen the contrast between the view that schools are transmitters of knowledge, and the view that they are purveyors of practices. As I said earlier, knowledge is vitally important, but it is important because of what it does, not what it is. We should not fetishise knowledge; instead, we should grasp how knowledge has its place in the living world. To reiterate: “all of what is conventionally called ‘knowledge’ arises from, recalls, anticipates, and returns to its use in practices” (Kemmis *et al.*, 2014, p.58). Knowledge may be essential for practices, but it is *practices* that are essential for living, for life, because it is through our practices that we participate in the community of life on the planet, for better or for worse. While we may be reluctant to call *breathing* a practice, it is by respiration that we engage with the air around us. Through our practices of *eating* we engage with the food we find or grow or buy. Through practices of *working* we engage with the economy. Through practices of *producing and consuming energy*, and through *transportation*, we travel locally and across the globe, demanding and consuming fossil fuels that contribute to the greenhouse effect and global warming, threatening thousands of other species as well as our own. It is with good reason that some palaeontologists call our era the *Anthropocene* – the era in which humankind and its practices will bring about one of the greatest extinction events in the history of the planet. It is through our practices of living that all of us engage with, and transform, the resources of the planet, with effects that ripple through all the rest of the community of life that also depends on the planet.

## Education

We learn knowledge not for its own sake, but for how it enables us to live, to live with others, and in the community of life on the planet. We learn things not only to contemplate them, but also to become good, and to make things, and to do things, as well as to consider how things might be otherwise or better for people, for humankind in general, and for the community of life on the planet. We learn things not just to contemplate them, but also to employ in living our lives.

Part of the answer to the question ‘Who is to learn what, for what ends?’ will be given by educational research. For those of us whose vocations are education and educational research, our task is to find ways to ask and answer this question so that individual persons can find interesting and satisfying lives, and, at the same time, so our societies and nations and people around the globe – humankind – can also thrive. Education has the double purpose of forming individuals *and* forming societies. As I understand it, these are the two faces of *Bildung* in the European pedagogical tradition (for example, Siljander, Kivelä and Sutinen, 2012).

On the view of practices I have outlined, I see education is an initiation into practices. But the practices into which people are initiated through *education* (as opposed to by habituation, or by socialisation, or by acculturation, or by indoctrination, for example) are ones intended to be for the good of the person being educated: in the justified self-interests of that person. Not only this: they will also be practices that are, simultaneously, intended to be in the interests of people universally, that is to say, in the justified collective interests of all – the good for humankind. Encapsulating this view in a slogan, one might say that education aims to form people so they can *live well in a world worth living in* – in a Fatherland worth living in, and in a community of life on Earth worth living in.

I do not have space here to elaborate the argument that leads me to this conclusion, but let me sketch my view of how education contributes to the good for humankind. First, it promotes and enhances individual and collective *self-expression*, and thus it works to secure a *culture based on reason*<sup>6</sup>. Second, education promotes and enhances individual and collective *self-development*, and thus it works to secure a *productive and sustainable economy and environment*. And third, education promotes and enhances individual and collective *self-determination*, and thus it works to secure a *just and democratic society*. These, it seems to me, are three crucial elements of the good for humankind, and ‘a world worth living in’.

Taking these ideas about the good for humankind into account, we might thus say, more precisely, that education is an initiation into practices, and thus into

- forms of understanding (sayings) that foster and sustain individual and collective self-expression,
- modes of action (doings) that foster and sustain individual and collective self-development, and
- ways of relating to others and the world (relatings) that foster and sustain individual and collective self-determination,

and, by doing these things, serves both

- the good for each person, and
- the good for humankind.

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<sup>6</sup> By ‘reason’ here, I do not mean a narrow rationalistic view of knowledge, but also the reason of the heart. As the French philosopher Blaise Pascal (1623-1662) put it (in his *Pensées [Meditations]*, 1670/1995, p.127), “The heart has its reasons, of which reason knows nothing”. On this view, we should include reasonableness and reason-giving as part of what is meant by ‘a culture based on reason’.



Figure 2 aims to represent this theory of education. It is a further elaboration of Figure 1, which depicted the theory of practice architectures.

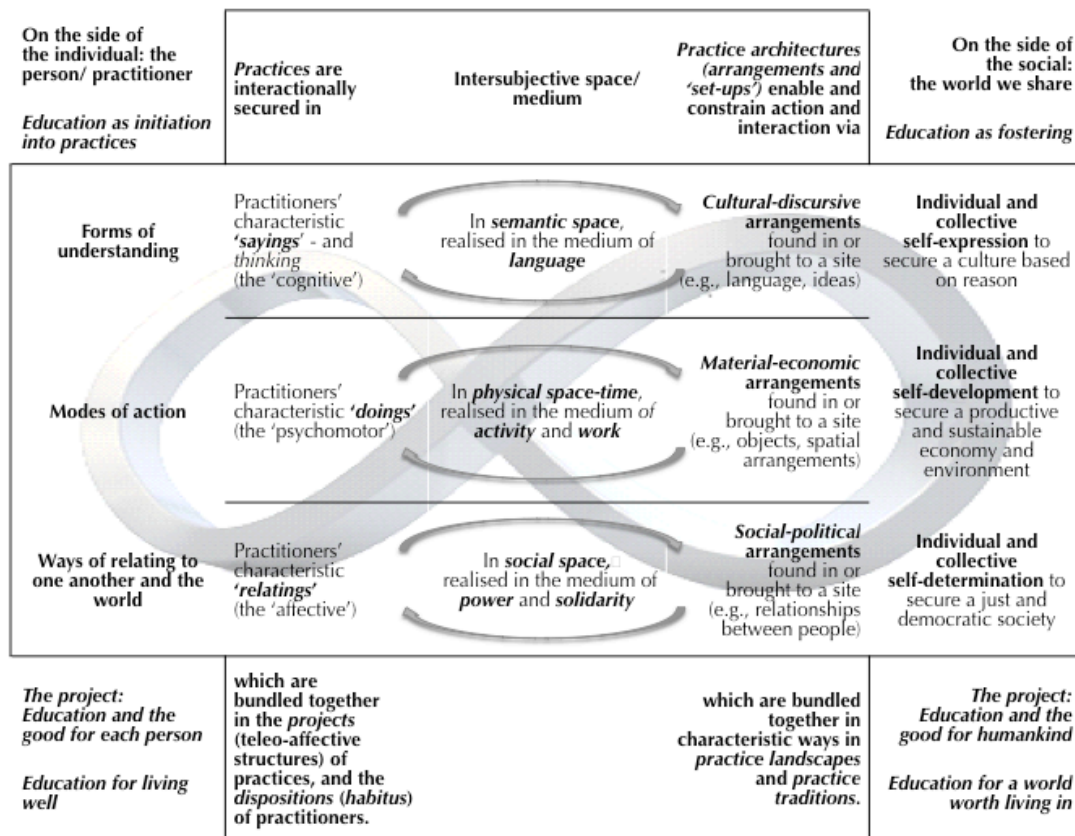


Figure 2: A theory of education (including the theory of practice architectures)

## Educational research

I have sketched a theory of practice, and a theory of education. Now I will make a few brief remarks about educational research.

First, I think the principal purposes of educational research are to make the practice of education more educational, as well as to make education less anti-educational or non-educational. In terms of making education more educational, educational research might help us more richly to achieve the double purpose of education: enhancing individuals' opportunities and capacities for self-expression, self-development, and self-determination, and, not only in our own nations but also across the globe, securing cultures based on reason, productive and sustainable economies, and just and democratic societies.

In terms of making education less anti-educational or non-educational, educational research might help us, as far as possible, to remove from schooling those practices that distract schools from the central task of educating students, and especially those that are contrary to the purposes of education – practices that make it harder for learners to achieve individual and collective self-expression, self-development and self-determination. Many practices in schools may have these untoward effects – like forms of classroom management that limit learners' freedom of expression, that demean or discourage students, or that limit learners' freedom of association. Educational research might helpfully identify where such practices are to be found in schools, and how they might be replaced with more educational practices.

On the view that education is an initiation into practices, challenges for educational research emerge in relation to each of the three main “message systems” of schools long ago identified by British educational researcher Basil Bernstein (1975): curriculum, pedagogy and evaluation (or assessment)<sup>7</sup>. I invite you to consider what tasks educational research might pursue if it were to adopt the theory of education as initiation into practices, in relation to each of these three message systems. Here I only have time to gesture broadly towards some such tasks.

### *Curriculum*

We are accustomed to specifying curricula in terms of the *knowledge* we want learners to learn. On the view of education I have outlined here, I encourage you to consider how curricula might be constructed in terms of the *practices* we want people to learn and to participate in. What might a *curriculum of practices* look like? What practices would we want to include, and for whom? How might we more effectively distribute through human populations the practices needed for the sustainability of our people and the planet, our economies and environments? And how might we work more effectively through education to prevent or avoid the maintenance and dissemination of those of our practices that currently threaten the planet – like elements of many of our taken-for-granted practices of agriculture, manufacturing, transportation, energy use, waste disposal, and so on. We need other practices to displace many of our present practices if we are to live sustainably on the planet; part of our task as educational researchers is thus to work with people in those industries, and others, to help discover and distribute practices in those fields that will allow us to live sustainably, for the sake of humankind and for the sake of Earth’s community of life.

### *Pedagogy*

In addition to considering the implications of specifying the content of education in terms of curricula of practices rather than curricula of knowledge, educational researchers might also want to explore the most appropriate pedagogies for teaching and learning various kinds of practices. Like specifying curricula, teaching and pedagogy occur in practices. What pedagogical practices are the most appropriate for teaching what practices? In many workplaces, as Lave and Wenger (1991) noticed, newcomers learn practices by ‘legitimate peripheral participation’, and later by direct participation. This kind of modelling and mimicking is not the only way to initiate newcomers into practices, although it has a history older than that of *Homo sapiens*. In many educational settings, practice architectures are constructed to make it easier for newcomers to participate more fully in all kinds of practices, including through simulation and training and direct instruction. Perhaps researchers will be able to develop a taxonomy of different kinds of practices, and a parallel taxonomy of pedagogical practices for teaching and learning those different kinds of practices.

### *Evaluation (assessment)*

Other questions for educational researchers will flow from the task of constructing curricula of practices. For example, we might also want to explore how best to assess learners’ practices rather than their knowledge. Assessing knowledge has a long history in psychometrics; assessing behaviours that reveal knowledge also has a long history; but how might we more directly assess the practices we want learners to learn? The competency-based testing movement might have been regarded as one tilt in this direction; the assessment of workplace learning is another, more promising, step. And other steps have also been taken

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<sup>7</sup> “Formal education knowledge can be considered to be realized through three message systems: curriculum, pedagogy, and evaluation. Curriculum defines what counts as a valid knowledge, pedagogy defines what counts as a valid transmission of knowledge, and evaluation defines what counts as a valid realization of this knowledge...” (Bernstein, 1975, p.85).

along these lines by researchers thinking about situated learning (like Lave and Wenger, 1991).

There is not time now to take these lines of speculation about curriculum, assessment and pedagogy further. But I invite you to think further about the implications of the notion of *curricula of practices* and whether and how curricula specified in terms of practices might be more or less productive than our current thinking about curricula specified principally in terms of knowledge.

## Conclusion

We are at a crucial turning point in the life of our planet and the species that inhabit it. We need to think of the planet not as a backdrop for human life, or simply as a resource for humankind. It is a community of life of which *Homo sapiens* is a living part. I have suggested that it is through our practices that we are intertwined with other species in this community of life, and through our practices that we engage with the dynamic chemical and geophysical processes of the Earth itself – including, but not only in relation to, the processes by which global climate change is occurring. Human life is conducted in practices; we are not the sole or autonomous producers of all of our own practices as individual people, but co-producers of practices, in concert with others, in the languages and cultures, the economies and environments, and the communities and societies, that we inhabit.

Humankind faces multiple and compounding challenges in the Anthropocene era. Our current ways of life threaten rising and future generations, not only of *Homo sapiens* but also many other species becoming extinct or threatened with extinction at an unprecedented rate. Our ways of life are made up of practices that must change if we – and many other species – are to survive and thrive.

Once upon a time, education could concern itself principally with the distribution of knowledge through populations. In those innocent days, nature seemed inexhaustible. Now, we know better. Now, we can see that many of our historically-given, culturally-formed practices are extinguishing many of the resources necessary for human life, and threatening many other species with extinction. But we can also see that it is through our practices that we are engaging with those other species and with the planet. We can see that our webs of practices are parts of the whole web of life on the planet. It is not just through our biology, one by one, that we participate in life on Earth, but also through social practices distributed differentially across the whole population of *Homo sapiens*.

If we think about the tasks of education and educational research from a practice perspective, we may be able to identify the kinds of practices we must curb and extinguish if our species and others are to survive and thrive. Education and educational research can help us to replace destructive practices with ones that are more likely to secure the sustainability of our species and other species, and to limit existential threats like those posed by rising sea levels, warming and more acidic oceans, warming air and land temperatures, more extreme weather events, and the mass migration of human beings caused by climate change and by the conflicts that migration is likely to generate.

The great conundrum of our time is that we have the science, and we have the knowledge, that allow us to conclude that these threats are upon us. (We have accomplished this knowledge through practices of science, and research, and education.) But this knowledge has not been sufficient to change our practices on the scale necessary to decisively avert the existential threats we face. Some of this knowledge *is* being put into practice – in changes in our use of fossil fuels for energy and transport, for example. But more changes in practice, on a global scale, are needed. Is one of the reasons that more of that science has not been put into practice because we have been satisfied with education as initiation into

knowledge, not education as initiation into practices? Have we been satisfied that people know the science, even though they have not transformed their lives to live differently on the planet? Every one of us has to make this transformation in our practices, in our lives, not just in our knowing but in our being and becoming.

Accomplishing the necessary changes in human social practices, and distributing new practices throughout human populations, are not just challenges for politics and policy. They require intimate changes in practice for all of us, and on behalf of rising generations. Changing the practices that currently constitute our world, and replacing them with more sustainable practices, is the central challenge for education and educational research in our time.

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